QC ABSTRACT

Nameof Work:De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15

Sl. No.	Item	Quantity As Per BOQ	Required No's of testes as per Frequency	Actual No's of testes as per Frequency	Testes Results
1	Slab (100mm)	311.58 Sqm	1	1	Pass
2	WMM	233.55Cum	-	-	-
		Gradation	3	3	Pass
		AIV	2	2	Pass
		Shape Test	2	2	Pass
		Atterberg Limits	3	3	Pass
3	DBM	77.85 Cum	-	-	-
		Quality of Binder	1	1	Pass
		AIV	1	1	Pass
		Shape Test	1	1	Pass
		Gradation	1	1	Pass
		Specific Gravity	1	1	Pass
		Stability of Mix	2	2	Pass
		Bitumen content	2	2	Pass
4	BC	173.00 Cum	-	-	-
		Quality of Binder	1	1	Pass
		AIV	1	1	Pass
		Shape Test	1	1	Pass
		Gradation	1	1	Pass
		Specific Gravity	1	1	Pass
		Stability of Mix	4	4	Pass
		Bitumen content	4	4	Pass

Assistant Executive Engineer
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Bagalagunte, BBMP
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Job No.: CCACE/BBMP/GMD/W.No.15/2022-23

Date: 06.07.2022

PRECAST SLAB 100 mm Thick(CORE) TEST REPORT

Client : : Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.

Contractor : : Sri. Gnanendra Murthy M D. Contractor Bangalore

Name of Work : : De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15

No.of Sample Tested : 03

Date of Testing : 06.07.2022

Techinical Reference : IS:516-1959 (Reaffirmed 1999), SP-24:1983.

Grade of Concrete : M_{20}

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	80.00	0.379	2412.79	1.60	0.957	32.70	16.65	17.99	17.21	21.51
2	50.00	82.00	0.385	2391.21	1.64	0.961	33.50	17.06	18.43	17.71	22.14
3	50.00	84.00	0.399	2419.16	1.68	0.965	33.90	17.27	18.65	18.00	22.50

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date : 13.07.2022

ATTERBERG LIMITS TEST FOR WMM

Client : **Assistant Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Sri. Gnanendra Murthy M D.** Contractor Bangalore

Name of Work : De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15

IS Code: : IS 2720(Part 5):1985

Date of Testing : 11.07.2022 to 13.07.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Date : 13.07.2022

ATTERBERG LIMITS TEST FOR WMM

Client : **Assistant Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Sri. Gnanendra Murthy M D.** Contractor Bangalore

Name of Work : De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15

IS Code: : IS 2720(Part 5):1985

Date of Testing : 11.07.2022 to 13.07.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	20.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date : 14.07.2022

ATTERBERG LIMITS TEST FOR WMM

Client : **Assistant Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Sri. Gnanendra Murthy M D.** Contractor Bangalore

Name of Work : De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15

IS Code: : IS 2720(Part 5):1985

Date of Testing : 12.07.2022 to 14.07.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date : 13.07.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of Work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	13.07.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.20	11.50	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	12.70	13.10	
	Combined Flakiness & Elongation index	23.90	24.60	

Note:

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23

Date : 14.07.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of Work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	14.07.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	12.10	11.90	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	13.60	13.20	
	Combined Flakiness & Elongation index	25.70	25.10	

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23

Date: 13.07.2022

Aggregate Impact Value

Client	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of the Work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	13.07.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294	294	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.63	23.04	22.83

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Note:

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Date: 14.07.2022

Aggregate Impact Value

Client	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of the Work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	14.07.2022

Sl No.	Details	Test No. 1	Test No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	295	294	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.57	23.04	22.80

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date :13.07.2022

GRADATION FOR WMM

Client : **Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**

Agency : **Sri. Gnanendra Murthy M D. Contractor Bangalore**

Name of Work : De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing :13.07.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	184	184	1.8	98.2	95-100
22.4	2536	2720	27.2	72.8	60-80
11.2	2150	4870	48.7	51.3	40-60
4.75	1845	6715	67.2	32.9	25-40
2.36	1189	7904	79.0	21.0	15-30
0.600	582	8486	84.9	15.1	8-22
0.075	1232	9718	97.2	2.8	0-5

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Date :13.07.2022

GRADATION FOR WMM

Client : **Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**

Agency : **Sri. Gnanendra Murthy M D. Contractor Bangalore**

Name of Work : De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing :13.07.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	198	198	2.0	98.0	95-100
22.4	2530	2728	27.3	72.7	60-80
11.2	2165	4893	48.9	51.1	40-60
4.75	1840	6733	67.3	32.7	25-40
2.36	1180	7913	79.1	20.9	15-30
0.600	626	8539	85.4	14.6	8-22
0.075	1236	9775	97.8	2.3	0-5

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Date :14.07.2022

GRADATION FOR WMM

Client : **Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**

Agency : **Sri. Gnanendra Murthy M D. Contractor Bangalore**

Name of Work : De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing :14.07.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	185	185	1.9	98.2	95-100
22.4	2537	2722	27.2	72.8	60-80
11.2	2155	4877	48.8	51.2	40-60
4.75	1851	6728	67.3	32.7	25-40
2.36	1190	7918	79.2	20.8	15-30
0.600	583	8501	85.0	15.0	8-22
0.075	1230	9731	97.3	2.7	0-5

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JobNo: CACE/BBMP/GMD/W.No.15/2022-23 Date : 18.07.2022

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client : **Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**

Agency : **Sri. Gnanendra Murthy M D. Contractor Bangalore**

Name of work : De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15

Source / Location : Hot Mix Plant, Bangalore

BIS Code : IS 2386 Part (4):1963

Type of Mix : Dense Graded Bituminous Macadam

Date of test : 18.07.2022

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	383	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	88	90	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	295	295	
5	Aggregate Impact value = percent fines	22.98	23.38	**23.18**
	100* (W2/W1) percent			

Comments:

→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)

For CIVIL AIM CONSULTANTS & ENGINEERS

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JobNo: CACE/BBMP/GMD/W.No.15/2022-23

Date : 18.07.2022

TEST RESULTS OF AGGREGATE SHAPE TEST
(Flakiness & Elongation)

Client : Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.

Agency : Sri. Gnanendra Murthy M D. Contractor Bangalore

Name of work : De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15

BIS Code : IS 2386 Part (1):1963

Date of Test : 18.07.2022

Type of Mix : Dense Graded Bituminous Macadam

Sl.No.	Flakiness Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	12.40	13.70	26.10	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	12.90	13.30	26.20	

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date: 18.07.2022

Aggregate Gradation Test

Client	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of the Work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
BIS Code	IS 2386(Part 1):1963(RA 2011)
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	18.07.2022

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.50	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.50	718	7.2	7.18	92.82	90 - 100	
19.00	1267	12.7	19.85	80.15	71 - 95	
13.20	1385	13.9	33.70	66.30	56 - 80	
4.75	2504	25.0	58.74	41.26	38 - 54	
2.36	1085	10.9	69.59	30.41	28 - 42	
0.300	1315	13.2	82.74	17.26	7 - 21	
0.075	1175	11.8	94.49	5.51	2 - 8	

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.5	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.5	685	6.9	6.85	93.15	90 - 100	
19	1412	14.1	20.97	79.03	71 - 95	
13.2	1139	11.4	32.36	67.64	56 - 80	
4.75	2416	24.2	56.52	43.48	38 - 54	
2.360	1159	11.6	68.11	31.89	28 - 42	
0.300	1312	13.1	81.23	18.77	7 - 21	
0.075	1175	11.8	92.98	7.02	2 - 8	

Note:

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Assistant Executive Engineer
T Dasarahalli Sub Division
BBMP
Bangalore-560073

Authorised Signatory

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Job No: CACE/BBMP/GMD/W.No.15/2022-23

Date: 18.07.2022

TEST REPORT ON PAVING BITUMEN

Client	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
BIS Code	IS 73:2013,IS 1203:1978, IS 1208:1978, IS 1205:1978, IS1448(P-69):1969
Date of Testing	18.07.2022
Type of Mix	Dense Graded Bituminous Macadam , VG 30
Source of Location	Hot Mix Plant

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

Sl.No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 0C, 100gms, 5sec, 1/10 mm	50	Min 45
2	Softening point, 0C	48	Min 47
3	Ductility at 250C, cm	>99	Min40
4	Flash Point, 0C	269	Min 220

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date: 20.07.2022

Specific Gravity And Water Absorption Test

Client	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of the Work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
BIS Code	IS 2386(Part 3):1963
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	18.07.2022 to 20.07.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2025	2022	2023	
2	Weight of basket suspended in water	W_2 g	755	756	758	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1270	1266	1265	
4	Weight of saturated surface dry aggregate in air	W_3 g	2017	2016	2015	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	747	750	750	
6	Weight of oven dried aggregate	W_4 g	2007	2007	2005	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.687	2.676	2.673	2.679
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.723	2.709	2.709	2.714
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.45%	0.50%	0.48%

Comments:

→ Maximum allowable Aggregate Water absorption value for Dense Graded Bituminous Macadam is 2.0% (As per MORTH table 500.8)

Assistant Executive Engineer
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Bangalore-560073

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date: 21.07.2022

TEST REPORT ON STABILITY OF MIX

Client	:	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of the Work	:	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	21.07.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.23	10.10	9 Kn (min)
2	Marshal flow, mm	3.66	3.79	2 – 4
3	Percent air voids in Mineral Aggregate	13.77	14.33	13 – 15
4	Voids in Compacted Mix	3.82	4.24	3 – 6
5	Percent Voids filled with Bitumen	68.89	69.55	65 - 75
6	Density, g/cc	2.23	2.27	--

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Assistant Executive Engineer
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Job No.: CACE/BBMP/GMD/W.No.15/2022-23

Date: 22.07.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	:	**: Sri. Gnanendra Murthy M D. Contractor Bangalore**
Name of the Work	:	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	22.07.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.36	10.34	9 Kn (min)
2	Marshal flow, mm	3.79	3.92	2 – 4
3	Percent air voids in Mineral Aggregate	13.69	14.65	13 – 15
4	Voids in Compacted Mix	3.72	4.65	3 – 6
5	Percent Voids filled with Bitumen	68.66	69.77	65 - 75
6	Density, g/cc	2.25	2.27	--

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Asst. Executive Engineer
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Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date: 21.07.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of the Work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
Date of Testing	21.07.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	23.00
7. Bitumen content in %	4.50	4.60
8. Average	4.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	34.4	34.4	7.2	92.8	90 - 100
19	74.9	109.3	22.9	77.1	71 - 95
13.2	66.9	176.2	36.9	63.1	56 - 80
4.75	84.6	260.8	54.6	45.4	38 - 54
2.360	76.5	337.3	70.6	29.4	28 - 42
0.300	96.9	434.2	90.9	9.1	7 - 21
0.075	21.9	456.1	95.5	4.5	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.5	36.5	7.7	92.3	90 - 100
19	73.4	109.9	23.0	77.0	71 - 95
13.2	66.8	176.7	37.0	63.0	56 - 80
4.75	84.50	261.2	54.8	45.2	38 - 54
2.360	78.6	339.8	71.2	28.8	28 - 42
0.300	98.5	438.3	91.9	8.1	7 - 21
0.075	23.4	461.7	96.8	3.2	2 - 8

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date: 22.07.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of the Work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
Date of Testing	22.07.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	477.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	22.50
7. Bitumen content in %	4.50	4.50
8. Average	4.50	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	34.4	34.4	7.2	92.8	90 - 100
19	73.9	108.3	22.7	77.3	71 - 95
13.2	66	174.3	36.5	63.5	56 - 80
4.75	84	258.3	54.1	45.9	38 - 54
2.360	76	334.3	70.0	30.0	28 - 42
0.300	96.8	431.1	90.3	9.7	7 - 21
0.075	21.6	452.7	94.8	5.2	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.5	36.5	7.6	92.4	90 - 100
19	73.4	109.9	23.0	77.0	71 - 95
13.2	66.8	176.7	37.0	63.0	56 - 80
4.75	84.50	261.2	54.7	45.3	38 - 54
2.360	78.6	339.8	71.2	28.8	28 - 42
0.300	98.5	438.3	91.8	8.2	7 - 21
0.075	23.4	461.7	96.7	3.3	2 - 8

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Assistant Executive Engineer
T. Dasarahalli Sub Division
BBMP

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23

Date: 19.07.2022

Aggregate Impact Value

Client	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of the Work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
BIS Code	IS 2386(Part 4):1963
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	19.07.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85.5	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	295.5	298	
4	Aggregate Impact value = percent fines	22.44	22.40	
	100* (W_2/W_1) percent			22.42

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%(MORTH table no.500.16)

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Date : 19.07.2022

Aggregate Gradation Test

IS : 2386 Part I

Client	**: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**: Sri. Gnanendra Murthy M D. Contractor Bangalore**
Name of the Work	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
BIS Code	IS 2386(Part 1):1963
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	19.07.2022

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	416	8.32	8.32	91.68	90 - 100	
9.5	475	9.50	17.82	82.18	70 - 88	
4.75	640	12.80	30.62	69.38	53 - 71	
2.36	687	13.74	44.36	55.64	42 - 58	
1.18	521	10.42	54.78	45.22	34 - 48	
0.600	548	10.96	65.74	34.26	26 - 38	
0.300	491	9.82	75.56	24.44	18 - 28	
0.150	367	7.34	82.90	17.10	12 - 20	
0.075	489	9.78	92.68	7.32	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	420	8.40	8.40	91.60	90 - 100	
9.5	549	10.98	19.38	80.62	70 - 88	
4.75	682	13.64	33.02	66.98	53 - 71	
2.36	533	10.66	43.68	56.32	42 - 58	
1.18	559	11.18	54.86	45.14	34 - 48	
0.600	546	10.92	65.78	34.22	26 - 38	
0.300	682	13.64	79.42	20.58	18 - 28	
0.150	198	3.96	83.38	16.62	12 - 20	
0.075	482	9.64	93.02	6.98	4 - 10	

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Job No.: CACE/BBMP/GMD/W.No.15/2022-23 Date: 19.07.2022

TEST REPORT

Client	:	: Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	: Sri. Gnanendra Murthy M D. Contractor Bangalore
Name of the work	:	: De-Silting and Re-setting of drain and Re-asphalting in Bhuvaneshwari Nagar and Surrounding Area in Ward No.15
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	19.07.2022

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	51	Min 45
2	Softening point, ^{0}C	50	Min. 47
3	Ductility at 27^{0}C, cm	>103	Min. 40
4	Flash Point, ^{0}C	282	Min. 220

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